GROUND-WATER QUALITY ASSESSMENT PLAN
October 2002
QUARTERLY REPORT

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ATTACHMENTS

Section 1

GENERAL

A Ground-Water Quality Assessment Plan was submitted to the Illinois Environmental Protection Agency (IEPA) on August 10, 1984, in response to significant differences from background for some ground-water contamination indicator parameters. After their review, a revised plan was submitted on September 20, 1984. Ground-water Assessment reports have been submitted to IEPA.

Presently, ground-water monitoring is conducted as a component of the CCL Custom Manufacturing, Inc. RCRA Surface Impoundment Closure Plan (ILD 005141726) dated March 30, 1988, and IEPA approval letter dated June 28, 1988. In addition, in a letter from IEPA dated November 10, 1988, further modifications of the closure/post-closure monitoring well locations and parameters were recommended (see Table 1). These IEPA recommended sampling and analysis activities have been incorporated into this Quarterly Report.

In a letter dated January 10, 2003, IEPA has made additional modifications to the volatile organic compound quarters; these modifications will be incorporated in all of the following monitoring activities.

TABLE 1
October 2002 GROUND-WATER PARAMETERS
(QUARTER 4 ON CLOSURE/POST-CLOSURE SCHEDULE)

Monitor Well No.	TOC\TOX[a]	In-Situ[b]	Level Measurement
1			X
1A			X
1B			X
R2			X
3			X
3A			X
3B	X		X
3C			X
3D*			X
3E	X		X
3F		X	X
3G			X
3H			X
3I			X
3J			X
3K		X	X
3L		X	X
4	X		X
4A		X	X
4B		X	X
4C			X
4D*			X
4E*			X
4F*			X
4G*			X
4H*			X
5			X
5A			X
5B			X
5C			X
5D	X		X
5E			X
5F			X
5G			X
6		X	X
7	X		X
7A	X		X
8	X		X
9			X
9A	X		X
9B		X	X
9C		X	X
20			X
AS-1		X	
IPS-2		X	
Field Blank[c]	X		
Trip Blank[c]	X		
Matrix Spike/Duplicate	X		

[a] Analysis by EPA Methods 9060 AND 9020A, Test Methods for Evaluating Solid Waste, SW-846 (EPA, 1986)

[b] Field measurements include depth to water, depth to well bottom, temperature, specific Conductance, and pH.

[c] Required as part of RFI Activities.

* Indicates that the well is a piezometer.

Section 2

SAMPLING ACTIVITIES

Ground-water sampling activities were conducted by Geotechnology, Inc., Collinsville, Missouri, at the CCL Custom Manufacturing, Inc. (formerly Peterson/Puritan, Inc.), Danville, Illinois facility on October 21 through October 22, 2002. Monitoring well locations are shown on Attachment I. Ground-water samples and in-situ data were collected at fifteen of the monitoring wells and in two interceptor sumps, in accordance with IEPA recommendations. Depths to water were measured for the 36 shallow monitoring wells, one deep well, and six piezometers on the CCL property, and depths to bottom were measured for all wells and piezometers.

Before any ground-water samples were collected, depth to water and depth to well bottom measurements were recorded for each well. The measuring points on the inner well casing were used as the reference points for each measurement. Electronic water-level indicators were used to obtain all measurements. Each of these measurements was made to the nearest hundredth of a foot. These measurements were subsequently used to calculate the volume of water to be purged from the well prior to collection of ground water quality samples. All depth measurements have been adjusted for casing stick-up and absolute land-surface elevation, and are reported in this report as well depth below land surface, and as ground-water surface elevations (see Attachment IIa).

Prior to the collection of samples from each monitoring well, a pre-cleaned dedicated teflon bailer was used to purge a minimum of three well volumes except in cases where the wells were purged dry prior to removal of three well volumes. All purge water was properly disposed of on site into the wastewater equalization tank. Generally, the water levels in the wells recovered quickly. Ground-water sample collection and in-situ chemical measurements were performed throughout well purging. The samples were collected following applicable protocols, and placed in coolers containing ice until they were shipped to Suburban Laboratories in Hillside, Illinois via overnight air delivery. Holding times for analyses were met for all samples. During the sampling activities, a field blank (equipment blank) and one trip blank (background) were collected.

Attachment IIa includes the results of field in-situ measurements (i.e., pH, water temperature, and specific conductance), depth to water, and depth to bottom. Attachment IIa supplemental presents the depth measures and changes in depth to water and bottom for each well sampled. In addition, Attachment IIb presents the results of laboratory analysis of the samples for TOC\TOX. Attachments IIIa and IIIb presents potentiometric surface contour plots of the water table aquifer.

Section 3

HYDROLOGY AND ANALYSIS OF DATA

3.1 HYDROLOGY

During the ground-water sampling activities, the ground-water levels were measured in the 36 shallow wells, 1 deep well, and 6 piezometers (PZ-3D,PZ-4D,PZ-4E, PZ-4F,PZ-4G, and PZ-4H). The water-level measurements were made more than fifteen and one half years after completion of the perimeter ground-water interceptor system, more than ten years after the completion of the tanker truck unloading area ground-water interceptor, and almost eight and one half years after the completion of the northeast and southwest extensions to the main interceptor. The ground-water levels are significantly lower than the August 2002 quarterly levels.

Ground-water levels near the interceptor have not changed as the interceptor discharge level is controlling the response of these wells. Thirteen monitoring wells (MW-1A, MW-R2, MW-3F, MW-3H, MW-3J, MW-3K, MW-3L, MW-4B, MW-7A, MW-8, MW-9, MW-9A, and MW-9B) have responded to the operation of the ground-water interceptor. Six other monitoring wells (MW-1, MW-1B, MW-3B, MW-3E, MW-5F, and MW-7) may have responded. Monitoring wells MW-3B, MW-3E, MW-3K, MW-7, MW-7A, MW-8, and MW-9A are down-gradient of the ground-water interceptor; the remaining monitoring wells that have responded are up-gradient of the interceptor.

The ground-water levels were analyzed using multi-variate regression methods to determine the general magnitude and direction of the ground-water gradient and ground-water flow across the site. This method of analysis has been used in previous quarterly reports. A simple linear model fit the water level data best and produced statistics that were more significant than more complex models. The correlation coefficient of the linear model indicates only moderate correlation. The estimated ground-water gradient is 34.1 feet per mile in a direction 16.9 degrees north of west, reflecting the continued response to the operation of the ground-water interceptor.

The map of the estimated ground-water contours is shown in Attachment III the linear contours are two-foot increments. Inferred contours pass under and through the former impoundments area and the fire pond. No significant influence of these areas is observed in the ground-water levels. Attachment III also depicts ground-water (2-foot interval) contours that were estimated from the observed ground-water levels using a Kriging estimator. This method interpolates and extrapolates levels based on the structure of the basic data. The method fits or "honors" measuring points. The operations of the new extensions to the main interceptor are quite noticeable in the water levels and contours in both the northeast and southwest areas of the facility.

3.2 RATE AND EXTENT

The quarterly ground-water sampling wells have been previously modified to incorporate wells that are further down-gradient. The facility also operates a down-gradient, perimeter ground-water interceptor that collects the ground-water that flows across the site and discharges to a local POTW. The ground-water interceptor has been documented in a previously submitted design and as-built documents. The operational levels of the interceptor (636.8 to 641.8 feet, MSL) are significantly lower than the observed ground- water levels on both sides (639.0 to 646.2 feet MSL). The interceptor, therefore, receives ground water from both its normally "up-gradient" and "down-gradient" sides.

Section 4

SUMMARY AND CONCLUSIONS

During the sampling activities, ground water from fifteen monitoring wells and two interceptor sumps was sampled and analyzed for TOC and TOX. The results of these sampling activities are presented in this report. All laboratory results for analyses are presented in Attachment IIb.

Ground water surface elevation data continues to be obtained quarterly from all shallow wells and piezometers at the CCL site. The ground-water surface elevation measurements calculated from the data collected at CCL (Attachment IIa). The most recent ground-water surface elevation measurements reflect seasonal recharge of the shallow aquifer and the continued operation of the ground-water interceptor system. The revised ground-water level contours, using static water level measurements are presented in Attachment III. Attachment IIIa presents the ground-water level contours derived from statistical regression analysis. Attachment IIIb presents the interpolated ground-water contours. A fairly uniform hydraulic gradient exists at the site, although the ground-water interceptor system has had a greater influence on water levels of monitor wells in proximity to the interceptor system.

Quarterly ground-water monitoring at the CCL Custom Manufacturing, Inc. facility will continue as directed by the Illinois Environmental Protection Agency.

October 02

ATTACHMENT II (a) Supplement I

DTW/DTB Changes

Monitoring Well Number	Aug 02 DTW (ft)	Oct 02 DTW (ft)	Aug 02 DTB (ft)	Oct 02 DTB (ft)	Del DTW (ft)	Del DTB (ft)		WELL M.P. (ft.MSL)	Aug 02 W.L (ft)	Oct 02 W.L. (ft)
	[Measurements are from top the of inner casing]									
1	6.35	7.88	19.09	19.00	-1.53	0.09		653.90	647.55	646.02
1A	7.40	13.59	22.42	22.43	-6.19	-0.01		653.91	646.51	640.32
1B	7.14	8.78	17.07	17.14	-1.64	-0.07		654.25	647.11	645.47
2R	11.85	11.78	20.79	20.75	0.07	0.04		654.37	642.52	642.59
3	6.26	9.85	21.66	21.56	-3.59	0.10	*	653.40	647.14	643.55
3A	5.26	8.24	17.35	18.28	-2.98	-0.93	*	653.50	648.24	645.26
3B	5.20	9.54	20.00	19.85	-4.34	0.15	*	651.62	646.42	642.08
3C	11.01	13.85	18.81	18.05	-2.84	0.76	*	653.33	642.32	639.48
3D	9.13	9.51	17.55	17.55	-0.38	0.00		655.57	646.44	646.06
3E	10.09	12.00	19.81	20.81	-1.91	-1.00	*	653.57	643.48	641.57
3F	8.52	10.49	19.92	19.90	-1.97	0.02		652.35	643.83	641.86
3G	6.11	11.10	19.61	19.62	-4.99	-0.01		651.63	645.52	640.53
3H	8.32	10.69	20.52	20.53	-2.37	-0.01		653.57	645.25	642.88
3I	3.51	8.58	21.69	21.80	-5.07	-0.11	*	656.50	652.99	647.92
3J	10.09	11.77	19.96	19.95	-1.68	0.01		653.01	642.92	641.24
3K	5.01	7.51	19.49	19.15	-2.50	0.34	*	652.31	647.30	644.80
3L	5.92	9.52	22.44	22.00	-3.60	0.44	*	651.49	645.57	641.97
4	5.96	7.87	19.69	19.57	-1.91	0.12	*	663.20	657.24	655.33
4A	6.91	10.45	22.00	22.00	-3.54	0.00		662.03	655.12	651.58
4B	9.59	11.88	22.29	22.43	-2.29	-0.14	*	658.59	649.00	646.71
4C	6.24	8.74	18.74	18.78	-2.50	-0.04		662.54	656.30	653.80
4D	5.35	8.29	24.25	24.27	-2.94	-0.02		660.51	655.16	652.22
4E	6.01	9.28	24.65	24.62	-3.27	0.03		661.31	655.30	652.03
4F	3.59	6.38	20.09	20.11	-2.79	-0.02		656.21	652.62	649.83
4G	6.02	10.90	20.12	20.14	-4.88	-0.02		655.48	649.46	644.58

4H	12.98	14.33	21.44	21.52	-1.35	-0.08	657.23	644.25	642.90
5	10.15	13.15	18.25	18.47	-3.00	-0.22 *	662.50	652.35	649.35
5A	10.98	14.09	18.40	18.36	-3.11	0.04	661.63	650.65	647.54
5B	7.03	10.44	19.14	20.11	-3.41	-0.97 *	659.59	652.56	649.15
5C	7.81	10.55	18.98	18.96	-2.74	0.02	659.77	651.96	649.22
5D	7.67	9.32	16.88	16.99	-1.65	-0.11 *	656.97	649.30	647.65
5E	9.77	12.66	27.21	27.23	-2.89	-0.02	661.25	651.48	648.59
5F	6.49	8.00	16.84	16.94	-1.51	-0.10 *	656.86	650.37	648.86
5G	8.56	11.44	21.84	21.87	-2.88	-0.03	659.49	650.93	648.05
6	4.90	8.14	19.39	19.45	-3.24	-0.06	658.09	653.19	649.95
7	3.49	4.82	16.82	16.84	-1.33	-0.02	651.26	647.77	646.44
7A	11.09	11.09	20.82	20.81	0.00	0.01	650.30	639.21	639.21
8	9.75	13.79	22.95	22.91	-4.04	0.04	654.67	644.92	640.88
9	11.39	13.60	20.68	20.67	-2.21	0.01	659.25	647.86	645.65
9A	7.40	9.88	17.80	17.25	-2.48	0.55 *	653.08	645.68	643.20
9B	8.24	10.46	20.56	20.61	-2.22	-0.05	657.79	649.55	647.33
9C	6.85	9.93	19.90	19.85	-3.08	0.05	656.18	649.33	646.25
20	12.50	13.90	>100	109.45	-1.40		652.54	640.04	638.64

[a] Delta DTW - Positive numbers indicate aquifer discharge from last quarter.
Negative numbers indicate aquifer recharge from last quarter.
[b] Delta DTB - negative numbers indicate slight silt accumulation since last quarter.
* = DTB measurements varied by more than 0.1 foot.

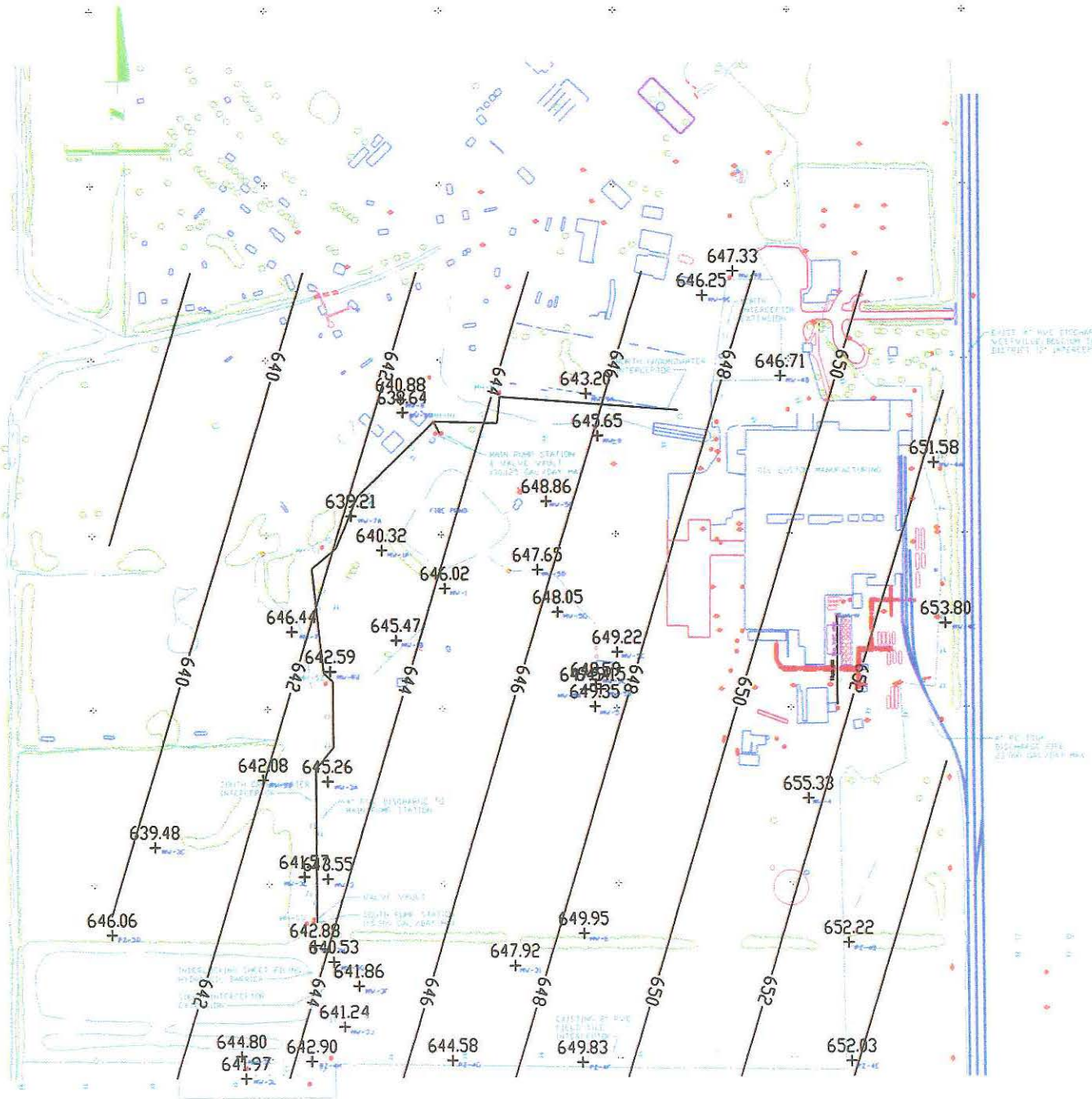
ATTACHMENT II(a)

SUMMARY OF IN-SITU MEASUREMENTS COLLECTED FROM MONITORING WELLS
AT CCL CUSTOM MANUFACTURING, INC., DANVILLE, ILLINOIS FACILITY
October 2002

Monitoring Well Number	Temp. (C)	pH	Specific Conductance (mhos) [a]	Depth to Water (ft)	Depth to Bottom (ft)	Inner Casing Stickup (ft)	Surveyed Inside Pipe Elevation (ft. MSL)	Groundwater Surface Elevation (ft. MSL)	DTW-Below Land Surface (ft) [b]	DTB-Below Land Surface (ft)
1				7.88	19.00	0.66	653.90	646.02	7.22	18.34
1A				13.59	22.43	3.10	653.91	640.32	10.49	19.33
1B				8.78	17.14	2.04	654.25	645.47	6.74	15.10
2R				11.78	20.75	2.07	654.37	642.59	9.71	18.68
3				9.85	21.56	1.98	653.40	643.55	7.87	19.58
3A				8.24	18.28	2.44	653.50	645.26	5.80	15.84
3B	14.4	7.6	657	9.54	19.85	2.04	651.62	642.08	7.50	17.81
3C				13.85	18.05	1.90	653.33	639.48	11.95	16.15
3D				9.51	17.55	2.16	655.57	646.06	7.35	15.39
3E	13.9	6.9	722	12.00	20.81	1.85	653.57	641.57	10.15	18.96
3F	14.5	6.6	2740	10.49	19.90	2.50	652.35	641.86	7.99	17.40
3G				11.10	19.62	2.40	651.63	640.53	8.70	17.22
3H				10.69	20.53	2.30	653.57	642.88	8.39	18.23
3I				8.58	21.80	2.40	656.50	647.92	6.18	19.40
3J				11.77	19.95	2.00	653.01	641.24	9.77	17.95
3K	16.6	6.9	608	7.51	19.15	-0.35	652.31	644.80	7.86	19.50
3L	14.7	6.8	681	9.52	22.00	-0.63	651.49	641.97	10.15	22.63
4	18.7	7.3	879	7.87	19.57	2.37	663.20	655.33	5.50	17.20
4A	14.6	6.9	802	10.45	22.00	2.93	662.03	651.58	7.52	19.07
4B	15.6	6.9	1310	11.88	22.43	-0.62	658.59	646.71	12.50	23.05
4C				8.74	18.78	1.95	662.54	653.80	6.79	16.83
4D				8.29	24.27	2.00	660.51	652.22	6.29	22.27
4E				9.28	24.62	3.00	661.31	652.03	6.28	21.62
4F				6.38	20.11	2.00	656.21	649.83	4.38	18.11

4G				10.90	20.14	2.41	655.48	644.58	8.49	17.73
4H				14.33	21.52	2.24	657.23	642.90	12.09	19.28
5				13.15	18.47	1.46	662.50	649.35	11.69	17.01
5A				14.09	18.36	1.60	661.63	647.54	12.49	16.76
5B				10.44	20.11	0.43	659.59	649.15	10.01	19.68
5C				10.55	18.96	1.72	659.77	649.22	8.83	17.24
5D	14.0	6.7	3460	9.32	16.99	2.01	656.97	647.65	7.31	14.98
5E				12.66	27.23	2.35	661.25	648.59	10.31	24.88
5F				8.00	16.94	1.85	656.86	648.86	6.15	15.09
5G				11.44	21.87	1.97	659.49	648.05	9.47	19.90
6	10.9	6.9	2210	8.14	19.45	2.07	658.09	649.95	6.07	17.38
7	16.4	7.0	1010	4.82	16.84	1.67	651.26	646.44	3.15	15.17
7A	15.2	7.0	2460	11.09	20.81	2.37	650.30	639.21	8.72	18.44
8	13.2	6.2	1390	13.79	22.91	2.35	654.67	640.88	11.44	20.56
9				13.60	20.67	2.23	659.25	645.65	11.37	18.44
9A	15.2	6.9	2040	9.88	17.25	2.68	653.08	643.20	7.20	14.57
9B	15.5	7.2	827	10.46	20.61	2.20	657.79	647.33	8.26	18.41
9C	14.6	6.9	1410	9.93	19.85	2.50	656.18	646.25	7.43	17.35
20				13.90	109.45	1.88	652.54	638.64	12.02	107.57

(a) - Conductivity values normalized to 25 C and reported in micro,(u), or milli, (m), mhos
(b) - Negative numbers denote that the water level is above the surface elevation in the wall standpipe.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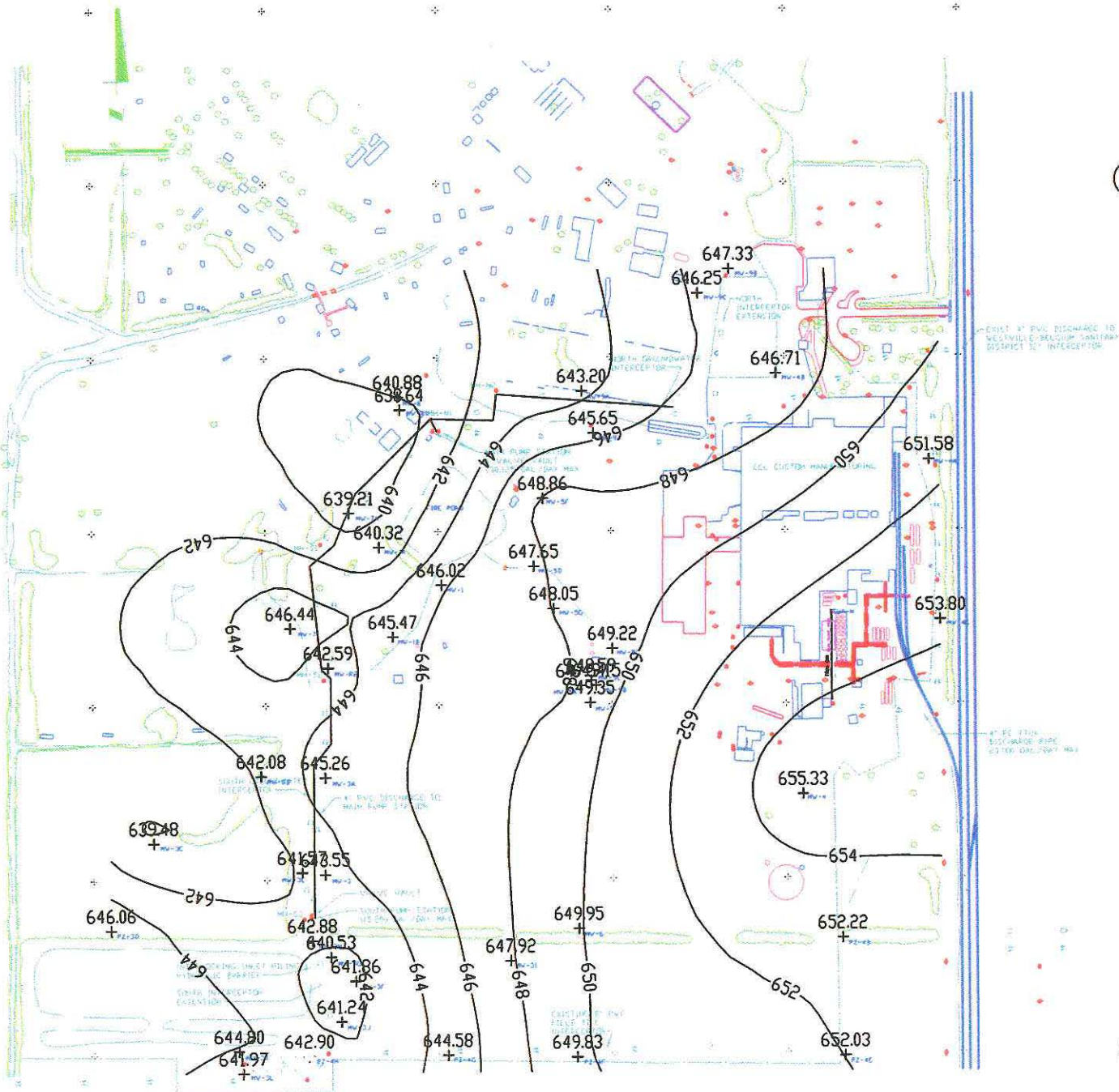
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